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WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

October 14, 2008

TO: Internal File

THRU: Daron R. Haddock, Permit Supervisor

FROM:  April A. Abate, Environmental Scientist/Hydrologist

SUBJECT: 2008 Second Quarter Water Monitoring, Mountain Coal Company, Gordon Creek 2, 7, & 8 Mine, C/007/0016-Q08-2 Task #2733

The Gordon Creek 2, 7, & 8 Mine has been reclaimed and received Phase II bond release on all but 1.63 acres on March 7, 2007. The 1.63 acres containing a three-cell sediment pond was reported as reclaimed in October 2007, according to an Annual Review report issued by the Division.

Pertinent water monitoring requirement information is in the MRP in Sections 7.1.8 and 7.2.6, and tables 7-17, and 7-18.

1. Was data submitted for all of the MRP required sites? YES ☒ NO ☐

Springs –

The Permittee is not required to monitor any springs at the Gordon Creek 2, 7, & 8 Mine.

Streams –

The Permittee is required to sample one intermittent stream (2-2-W), and three ephemeral stream sites (2-7-W, 2-8-W, 2-9-W) for flow, and the laboratory parameters outlined in Table 7-18 each quarter.

Quarterly sampling data from the required sampling points were reported from sample points 2-2-W and 2-10-W. All other sampling point data from the ephemeral streams did not record any flow for this quarter.

Wells–

The Permittee is not required to monitor any wells at the Gordon Creek 2, 7, & 8 Mine.

UPDES

There is no longer an active UPDES site at the Gordon Creek 2, 7, & 8 Mine.

2. Were all required parameters reported for each site? YES ☒ NO ☐

3. Were any irregularities found in the data? YES ☒ NO ☐

Site	Reliability Check	Acceptable Range	Value is...
2-2-W	Cation/Anion Balance	<5%	3.5%
2-2-W	TDS/Conductivity	>0.55 & <0.75	0.66
2-2-W	Conductivity/Cations	> 90 & < 110	88.16
2-2-W	K/(Na + K)	<20%	24.0%
2-2-W	Mg/(Ca + Mg)	< 40 %	20.0%
2-2-W	Ca/(Ca + SO ₄)	>50%	72.0%
2-2-W	Na/(Na + Cl)	>50%	41.0%
2-10-W	Cation/Anion Balance	<5%	4.1%
2-10-W	TDS/Conductivity	>0.55 & <0.75	0.79
2-10-W	Conductivity/Cations	> 90 & < 110	67.70
2-10-W	K/(Na + K)	<20%	37.0%
2-10-W	Mg/(Ca + Mg)	< 40 %	50.0%
2-10-W	Ca/(Ca + SO ₄)	>50%	30.0%
2-10-W	Na/(Na + Cl)	>50%	36.0%

Note: **BOLD** indicates the value is out of the acceptable range for the parameter(s).

The Permittee should work with the lab to make sure that samples pass all quality checks so that the reliability of the samples does not come into question. These inconsistencies do not necessarily mean that a sample is wrong, but it does indicate that something is unusual. An analysis and explanation of the inconsistencies by the Permittee would help to increase the Division's confidence in the samples. The Permittee can learn more about these reliability checks and some of the geological and other factors that could influence them by reading Chapter 4 of *Water Quality Data: Analysis and Interpretation* by Arthur W. Hounslow.

4. On what date does the MRP require a five-year re-sampling of baseline water data.

The MRP does not require a five-year re-sampling of baseline water data.

5. Based on your review, what further actions, if any, do you recommend?

Trends in water quality data over the past few quarters have shown anomalies for several of the parameters analyzed. During this particular quarter, several data parameters were noted as out of acceptable ranges for the ephemeral stream collection point, 2-10-W. The Permittee should closely examine these data trends and work to resolve the inconsistencies in the data.

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